

1001002, Washington

40-Channel SSB Base

\$5.00



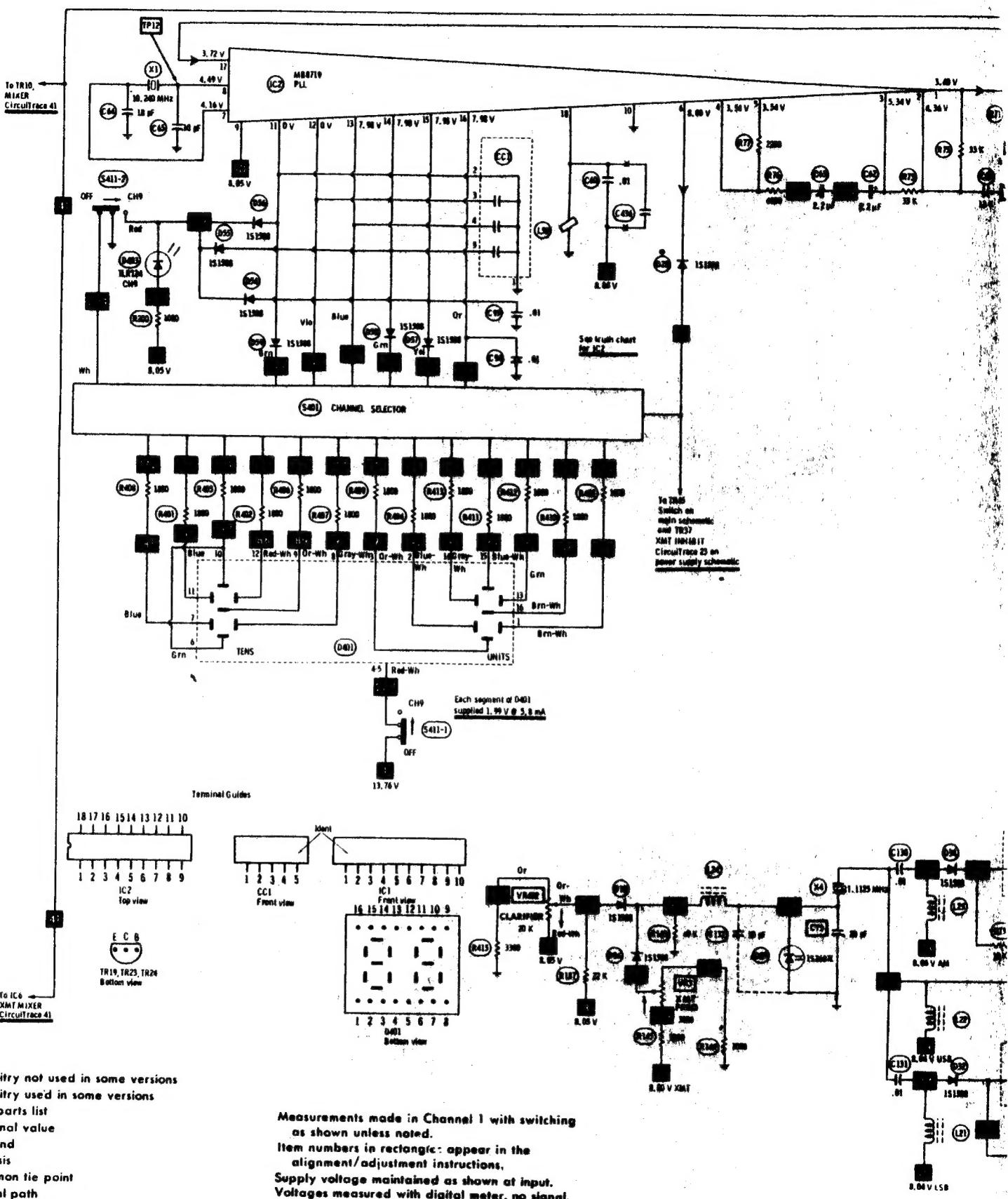
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Service manual

**PRESIDENT**

Engineered to be the very best.

President Electronics, Inc., 16691 Hale Ave.,  
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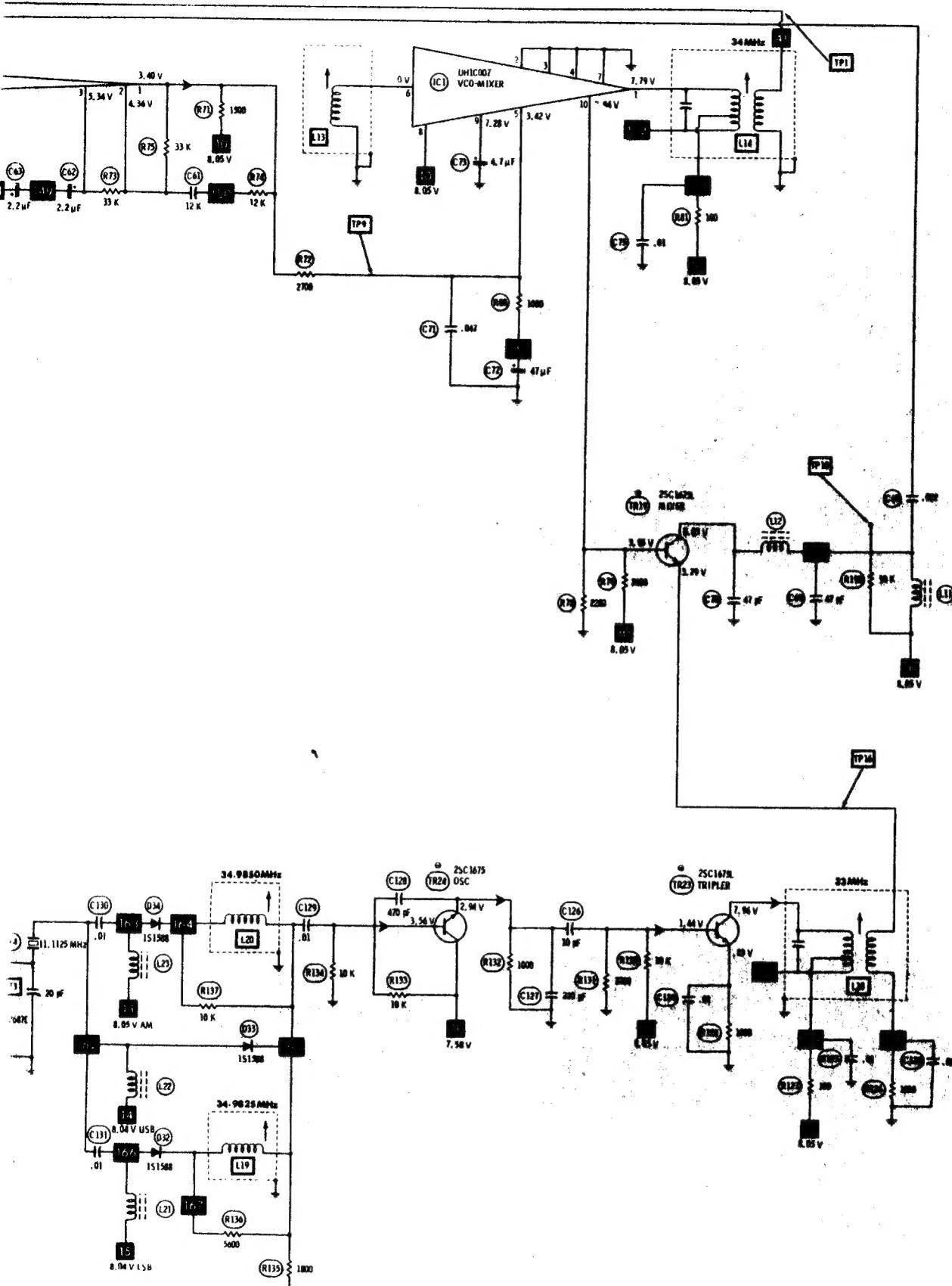
A PHOTOFAC STANDARD NOTATION SCHEMATIC  
WITH CIRCUITTRACE

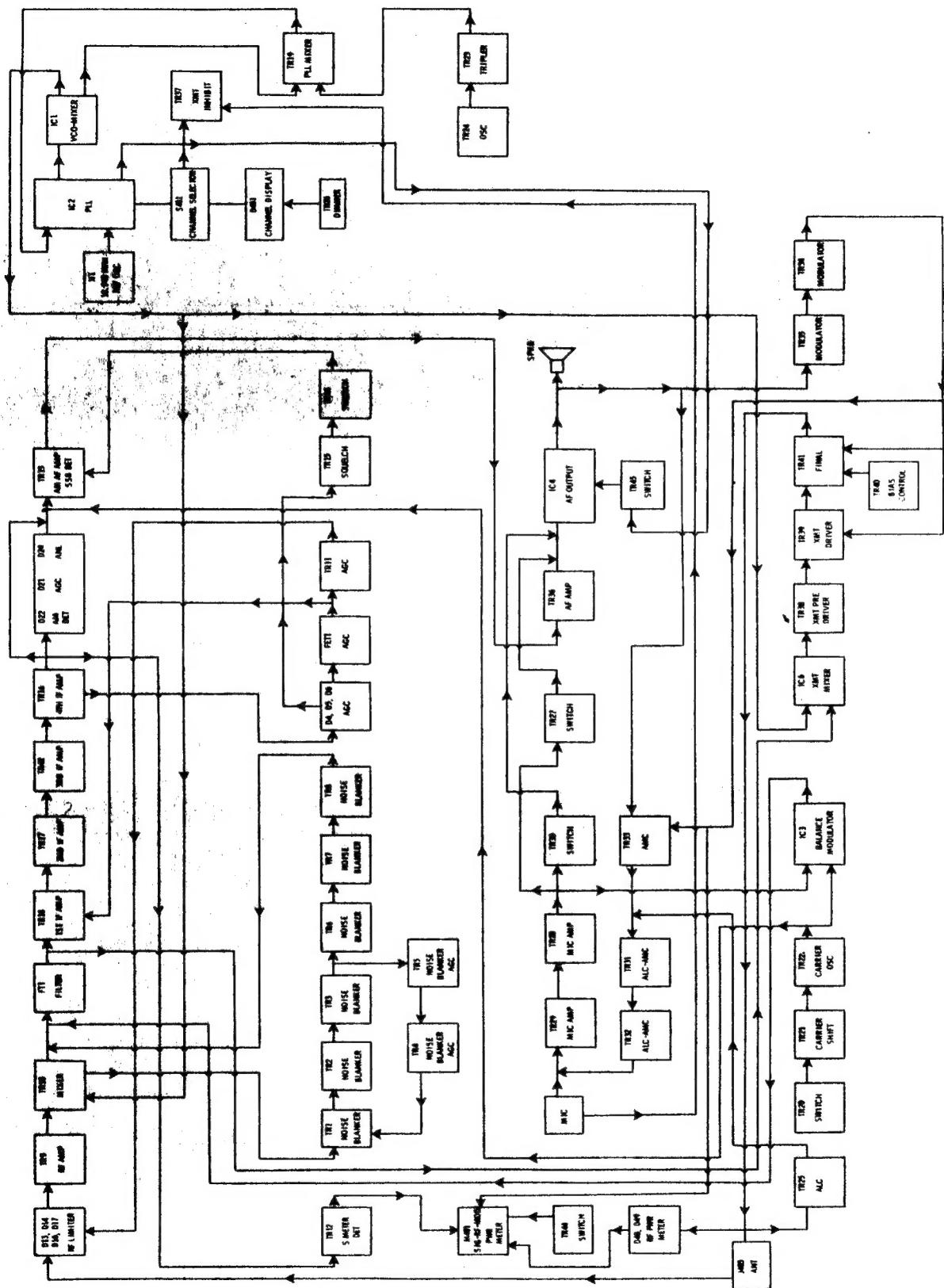
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PRESIDENT MODEL 1001002, WASHINGTON

(3)





BLOCK DIAGRAM

## ALIGNMENT INSTRUCTIONS

**CAUTION:** Use isolation transformer or observe polarity when connecting test equipment.  
Maintain line voltage at 120V AC. Allow a 15-minute warm-up period.

Adjustments made with 13.8-volt DC at TP15.

Connect low sides of test equipment to ground unless specified otherwise.

Connect 50-ohm dummy load or antenna before keying transmitter.

Connect microphone.

Suggested Alignment Tools:

L1 thru L10, L13, L14, L17 thru L20, L26 thru L29 ...	9440	GC ELECTRONICS:
L36, L39 .....	8728, 8728A, 9304	
CT1, CT2, CT3 .....	5000, 8276	

## SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP12 (IC2 Pin 8).	Ch. 19, AM		Check for 10.240MHz.
Input of oscilloscope to TP16 (L18 Secondary).	Ch. 19, AM Clarifier Midrange	L18	Adjust for maximum RF.
Input of DC meter to TP9.	Ch. 40, AM	L13	Adjust for 5.00 volts.
Input of oscilloscope to TP1.	Ch. 19, USB	L14	Adjust for maximum RF.
Input of frequency counter to TP1.	Ch. 19, USB Clarifier Midrange	CT3	Adjust for 34.9875MHz +20Hz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP1.	Ch. 19, LSB Clarifier Midrange	L19	Adjust for 37.9825MHz +20Hz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP1.	Ch. 19, AM Clarifier Midrange	L20	Adjust for 34.9850MHz. +20Hz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP1.	Ch. 19, XMT, LSB	VR3	Adjust for 34.9825MHz +20Hz.
Input of frequency counter to TP10.	Ch. 1, USB		Check for 1.430MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP3.	Ch. 19, USB	CT1	Adjust for 7.8025MHz +5Hz or -0Hz.
Input of frequency counter to TP3.	Ch. 19, USB	CT2	Adjust for 7.7975MHz +0Hz or -5Hz.
Input of frequency counter to TP3. Disconnect TP7 and TP8.	Ch. 19, XMT, AM	L17	Adjust for 7.8000MHz +5Hz.

**RECEIVER ALIGNMENT**

Connect an AC VTVM or AF wattmeter across speaker voice coil.  
Adjust volume control to obtain a suitable indication.

Set generator output low enough to prevent AGC limiting.

Mode AM, RF Gain Maximum, Squelch MINIMUM, Clarifier Midrange, NB Off

**AM**

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP13 (TR10 Collector). 7.8MHz, 1000Hz @ 30% modulation.	Ch. 19	L3, L4	Adjust for maximum output.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	L5, L6, L7, L8, L9, L10	Adjust for maximum output. If necessary readjust L3 and L4 for maximum.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Input of oscilloscope to TP14 (TR6 Emitter).	Ch. 19	L1, L2	Set generator output for 10db signal to noise plus noise ratio of receiver. Inject a 100ppa, 1uSec pulse width signal at antenna input. Switch Noise Blanker on and adjust for maximum amplitude pulses.

**RECEIVER ADJUSTMENTS**

Connect an AC VTVM or AF wattmeter across speaker voice coil.  
Adjust volume control to obtain a suitable indication.

Mode AM, RF Gain Maximum, Squelch MINIMUM, Clarifier Midrange, NB Off

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 1000uV.	Ch. 19 Squelch Maximum	VR2	SQUELCH RANGE Adjust so that squelch just breaks.
Output of signal generator thru .01uF to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19 S/RF/MOD S/RF	VR1	SIG METER Adjust for 9 on sig scale of meter.

**RECEIVER ALIGNMENT**

Connect an AC VTVM or AF wattmeter across speaker voice coil.  
Adjust volume control to obtain a suitable indication.

Set generator output low enough to prevent AGC limiting.

Mode USB, RF Gain Maximum, Squelch MINIMUM, Clarifier Midrange, NB Off

**SSB**

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP13 (TR10 Collector). 7.8025MHz, no modulation.	Ch. 19	L3, L4	Adjust for maximum output.
Output of signal generator thru .01uF to antenna input. 27.186MHz, no modulation.	Ch. 19	L5, L6, L7, L8, L9, L10	Adjust for maximum output. If necessary readjust L3 and L4 for maximum.

## TRANSMITTER ALIGNMENT

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.

NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.  
See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of RF wattmeter and 50-ohm, 25 watt dummy load to antenna input. Inject a two tone 50mV signal at Mic input.	Ch. 19, USB Mike Gain Maximum	L26, L27, L28, L29, L36	Set VR7 to MINIMUM. Adjust for maximum RF output.
Input of spectrum analyzer or harmonic meter to antenna input.	Ch. 19, AM Mike Gain MINIMUM	L39	Adjust for MINIMUM at 54MHz (2nd harmonic).

## TRANSMITTER ADJUSTMENTS

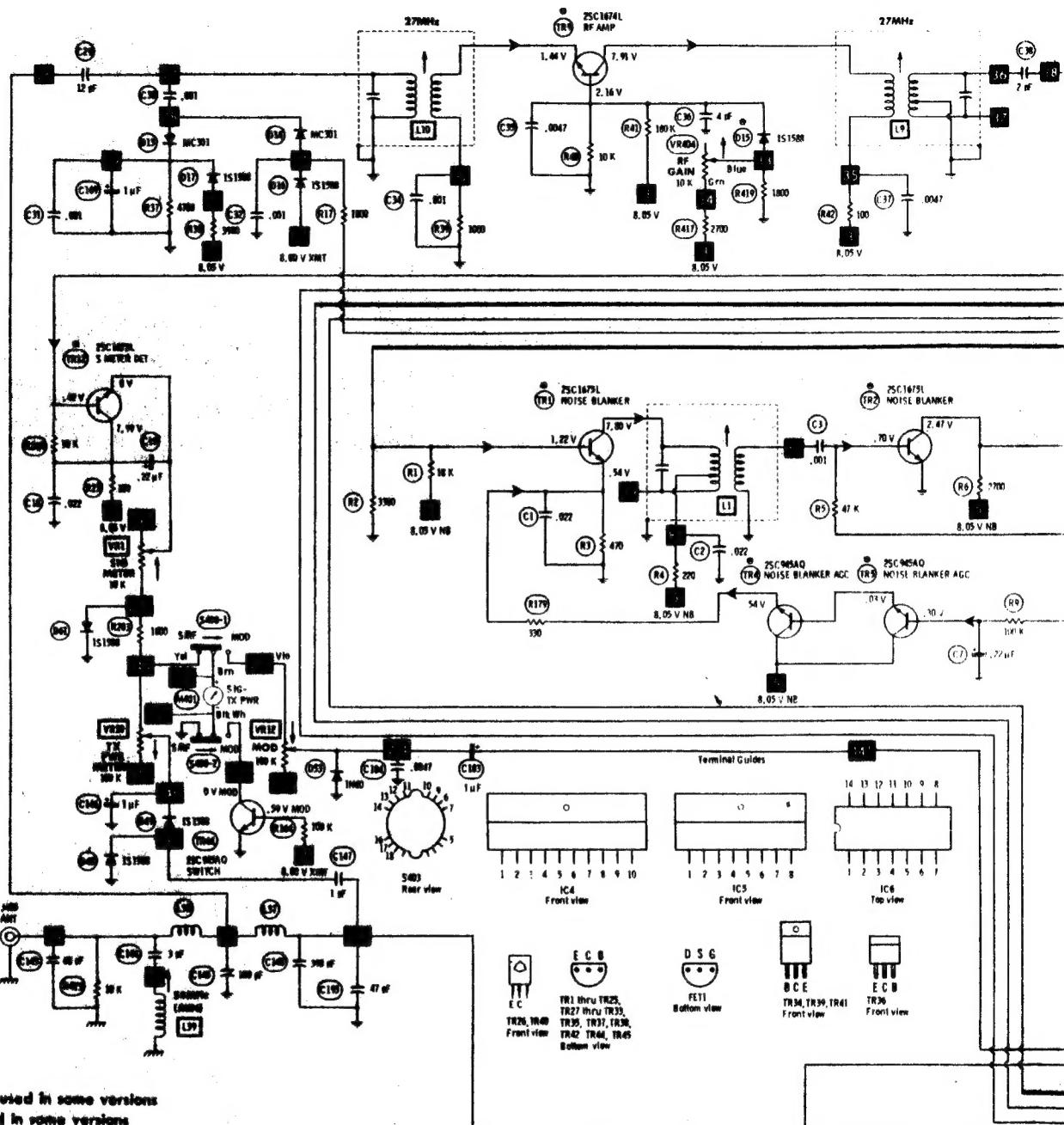
Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.

NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.  
See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of DC meter to TP15.	Ch. 19, AM	RT301	VOLT REGULATOR Adjust for 13.80 volts.
Input of oscilloscope or modulation meter to antenna input.	Ch. 19, AM S/RP/MOD MOD	VR12	MOD METER Adjust so that MOD meter agrees with external modulation meter.
Insert a 0-150mA DC current meter at TP8. No modulation.	Ch. 19, USB Mike Gain MINIMUM	VR8	RF DRIVER BIAS Adjust for 35mA idle current. Reconnect TP8.
Insert a 0-150mA DC current meter at TP7. No modulation.	Ch. 19, USB Mike Gain MINIMUM	VR9	RF FINAL BIAS Adjust for 45mA idle current. Reconnect TP7.
Input of RF wattmeter and 50-ohm, 25 watt dummy load to antenna input. No modulation.	Ch. 19, USB Mike Gain MINIMUM	VR5	CARRIER BALANCE Adjust for MINIMUM RF output. Check LSB and readjust if necessary for MINIMUM RF output.
Input of RF wattmeter and 50-ohm, 25 watt dummy load to antenna input. Inject a two tone, 50mV signal at Mic input.	Ch. 19, USB Mike Gain Maximum	VR7	RF ALC Adjust for 11.0 watts PEP RF output maximum.
Input of RF wattmeter and 50-ohm, 25 watt dummy load to antenna input. No modulation.	Ch. 19, AM Mike Gain MINIMUM	VR6	AM POWER Adjust for 4.0 watts RF output maximum.
Input of RF wattmeter and 50-ohm, 25 watt dummy load to antenna input. No modulation.	Ch. 19, AM Mike Gain MINIMUM S/RP/MOD S/RF	VR10	RF PWR METER Adjust so that PWR meter agrees with RF wattmeter.

TRUTH CHART

C H A N N E L	1 = 7.98 Volts      0 = 0 Volts							DIVIDER INPUT IN MHz AT TP10	AM REC VCO OUTPUT IN MHz AT TP1	USB REC VCO OUTPUT IN MHz AT TP1	LSB REC VCO OUTPUT IN MHz AT TP1				
	IC2 PROGRAM DIVIDER														
	PINS														
	11	12	13	14	15	16									
1	0	0	1	1	1	1		1.430	34.765	34.7675	34.7625				
2	0	1	0	0	0	0		1.440	34.775	34.7775	34.7725				
3	0	1	0	0	0	1		1.450	34.785	34.7875	34.7825				
4	0	1	0	0	1	0		1.470	34.805	34.8075	34.8025				
5	0	1	0	1	0	0		1.480	34.815	34.8175	34.8125				
6	0	1	0	1	0	1		1.490	34.825	34.8275	34.8225				
7	0	1	0	1	1	0		1.500	34.835	34.8375	34.8325				
8	0	1	1	0	0	0		1.520	34.855	34.8575	34.8525				
9	0	1	1	0	0	1		1.530	34.865	34.8675	34.8625				
10	0	1	1	0	1	0		1.540	34.875	34.8775	34.8725				
11	0	1	1	0	1	1		1.550	34.885	34.8875	34.8825				
12	0	1	1	1	0	1		1.570	34.905	34.9075	34.9025				
13	0	1	1	1	1	0		1.580	34.915	34.9175	34.9125				
14	0	1	1	1	1	1		1.590	34.925	34.9275	34.9225				
15	1	0	0	0	0	0		1.600	34.935	34.9375	34.9325				
16	1	0	0	0	1	0		1.620	34.955	34.9575	34.9525				
17	1	0	0	0	0	1		1.630	34.965	34.9675	34.9625				
18	1	0	0	0	1	0		1.640	34.975	34.9775	34.9725				
19	1	0	0	0	1	0		1.650	34.985	34.9875	34.9825				
20	1	0	0	0	1	1		1.670	34.005	35.0075	35.0025				
21	1	0	1	0	0	0		1.680	35.015	35.0175	35.0125				
22	1	0	1	0	0	1		1.690	35.025	35.0275	35.0225				
23	1	0	1	1	0	0		1.720	35.055	35.0575	35.0525				
24	1	0	1	0	1	0		1.700	35.035	35.0375	35.0325				
25	1	0	1	0	1	1		1.710	35.045	35.0475	35.0425				
26	1	0	1	1	0	1		1.730	35.065	35.0675	35.0625				
27	1	0	1	1	1	0		1.740	35.075	35.0775	35.0725				
28	1	0	1	1	1	1		1.750	35.085	35.0875	35.0825				
29	1	1	0	0	0	0		1.760	35.095	35.0975	35.0925				
30	1	1	0	0	0	1		1.770	35.105	35.1075	35.1025				
31	1	1	0	0	1	0		1.780	35.115	35.1175	35.1125				
32	1	1	0	0	1	1		1.790	35.125	35.1275	35.1225				
33	1	1	0	1	0	0		1.800	35.135	35.1375	35.1325				
34	1	1	0	1	0	1		1.810	35.145	35.1475	35.1425				
35	1	1	0	1	1	0		1.820	35.155	35.1575	35.1525				
36	1	1	0	1	1	1		1.830	35.165	35.1675	35.1625				
37	1	1	1	0	0	0		1.840	35.175	35.1775	35.1725				
38	1	1	1	0	0	1		1.850	35.185	35.1875	35.1825				
39	1	1	1	0	1	0		1.860	35.195	35.1975	35.1925				
40	1	1	1	0	1	1		1.870	35.205	35.2075	35.2025				



—**Circuitry not used in some versions**

---**Circuitry used in some versions**

● See parts list

● Nominal value

◆ Ground

↔ Channel

▽ Common mode path

← Signal path

→ Voltage path

**Measurements made in Channel 1 with switching**  
as shown indicated.

**Item numbers in rectangles appear in the**  
**alignment/adjustment instructions.**

**Supply voltage maintained as shown at input.**

**Voltages measured with digital meter, no signal.**

**Controls adjusted for normal operation.**

**Arrow on control indicates direction of advance.**

**Terminal identification may not be found on unit.**

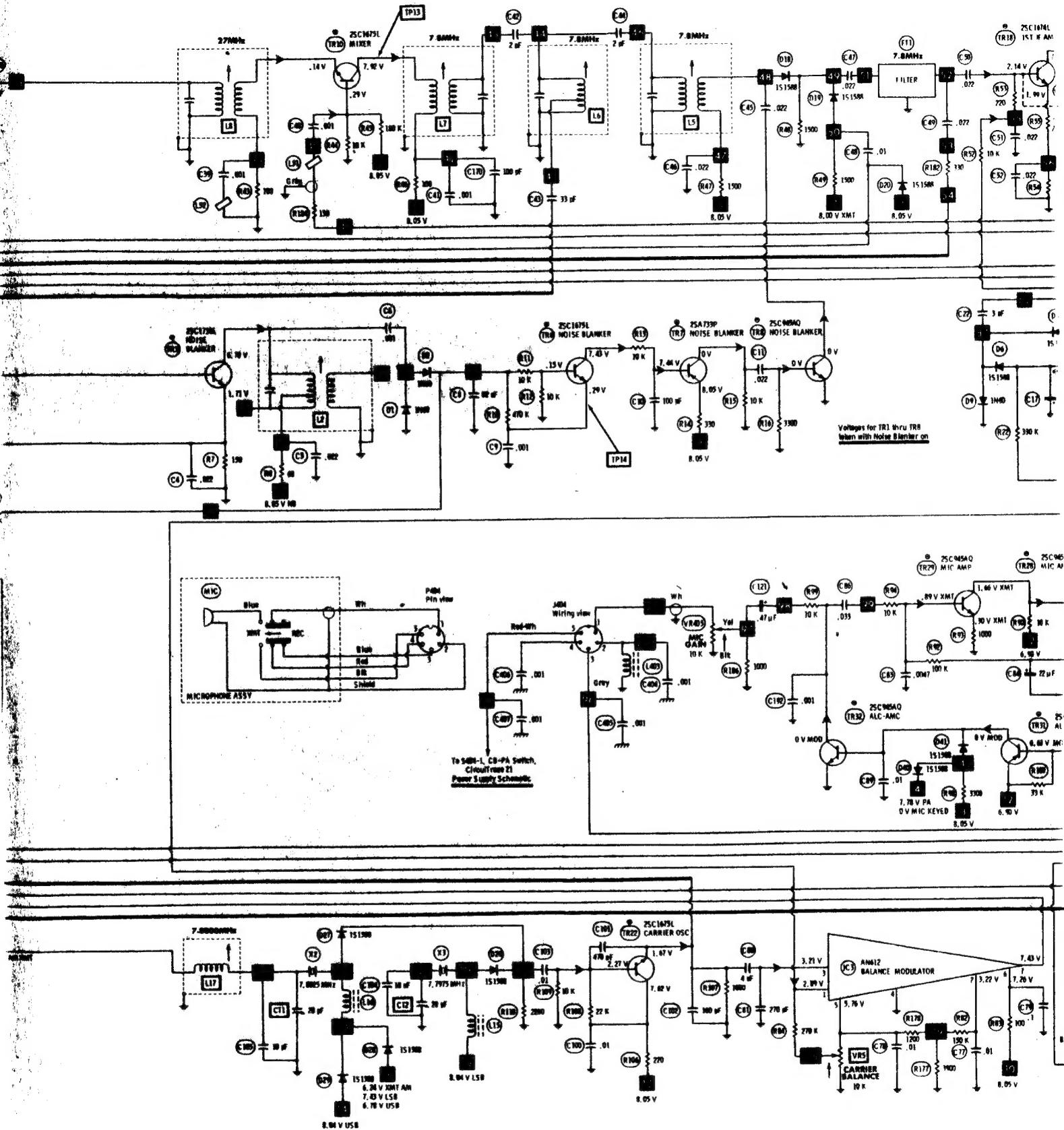
**Resistors are 1/2W or less, 5% unless noted.**

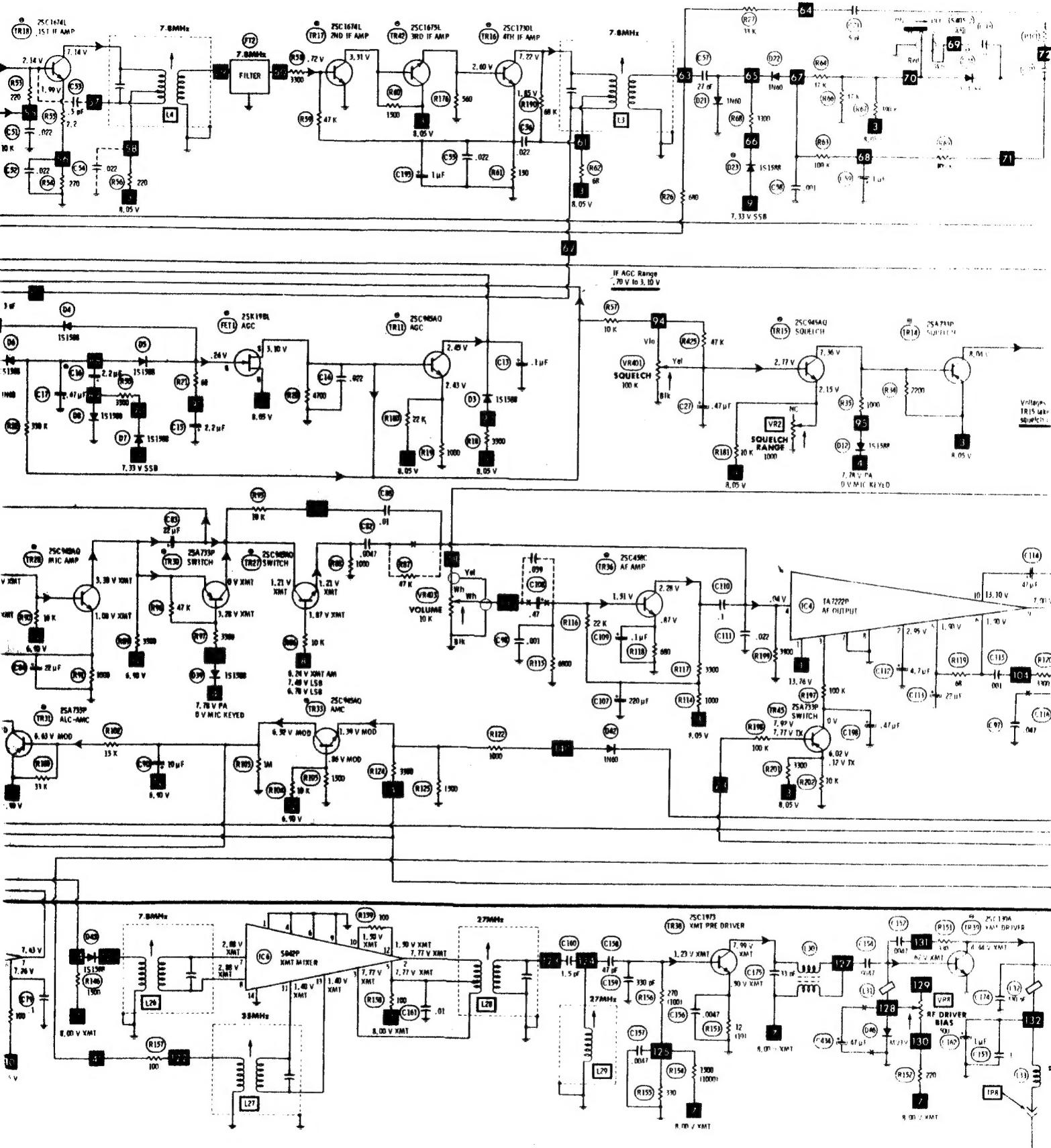
**Value in ( ) used in some versions.**

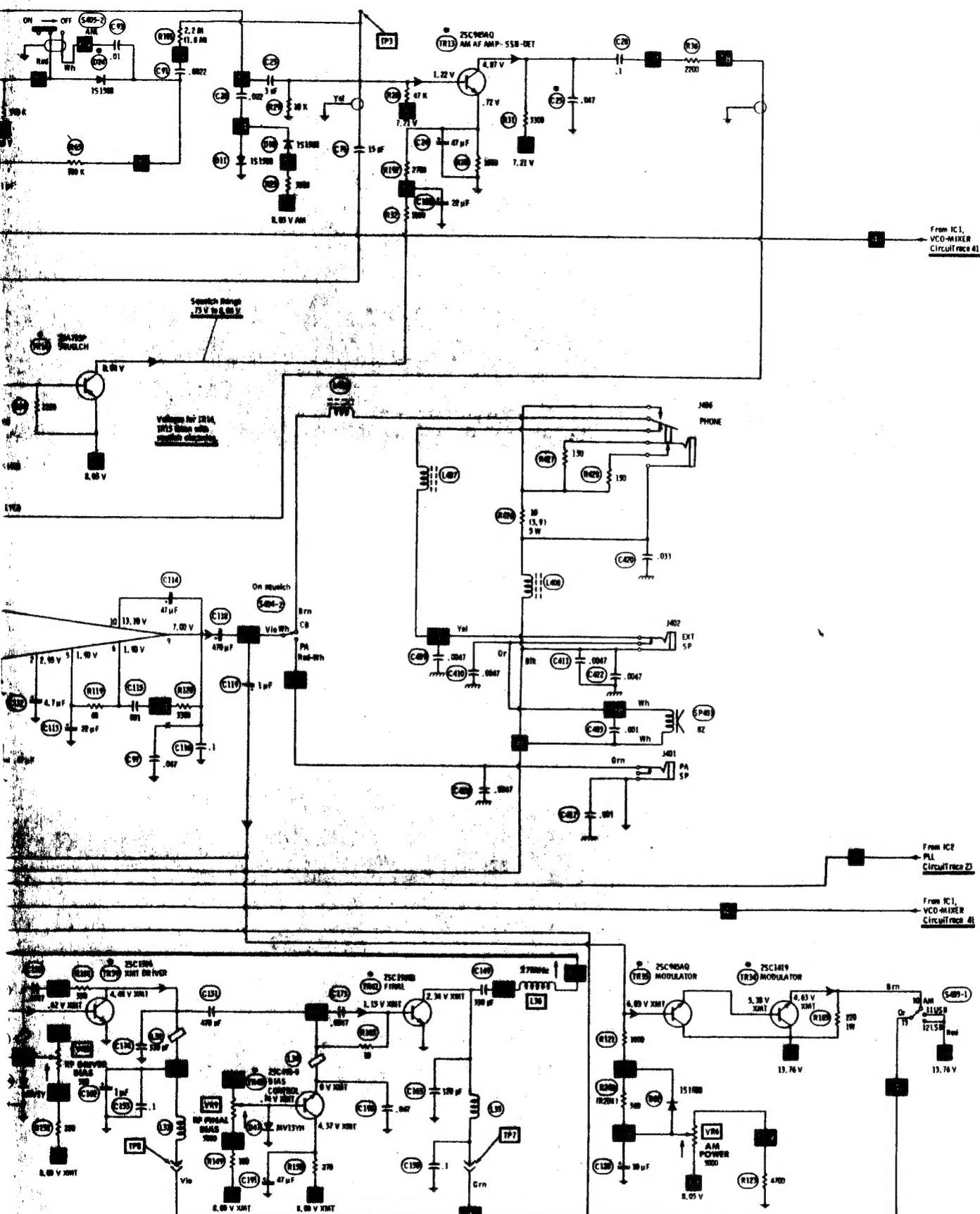
A PHOTOCRAFT STANDARD NOTATION SCHEMATIC

WITH CIRCUITRADE

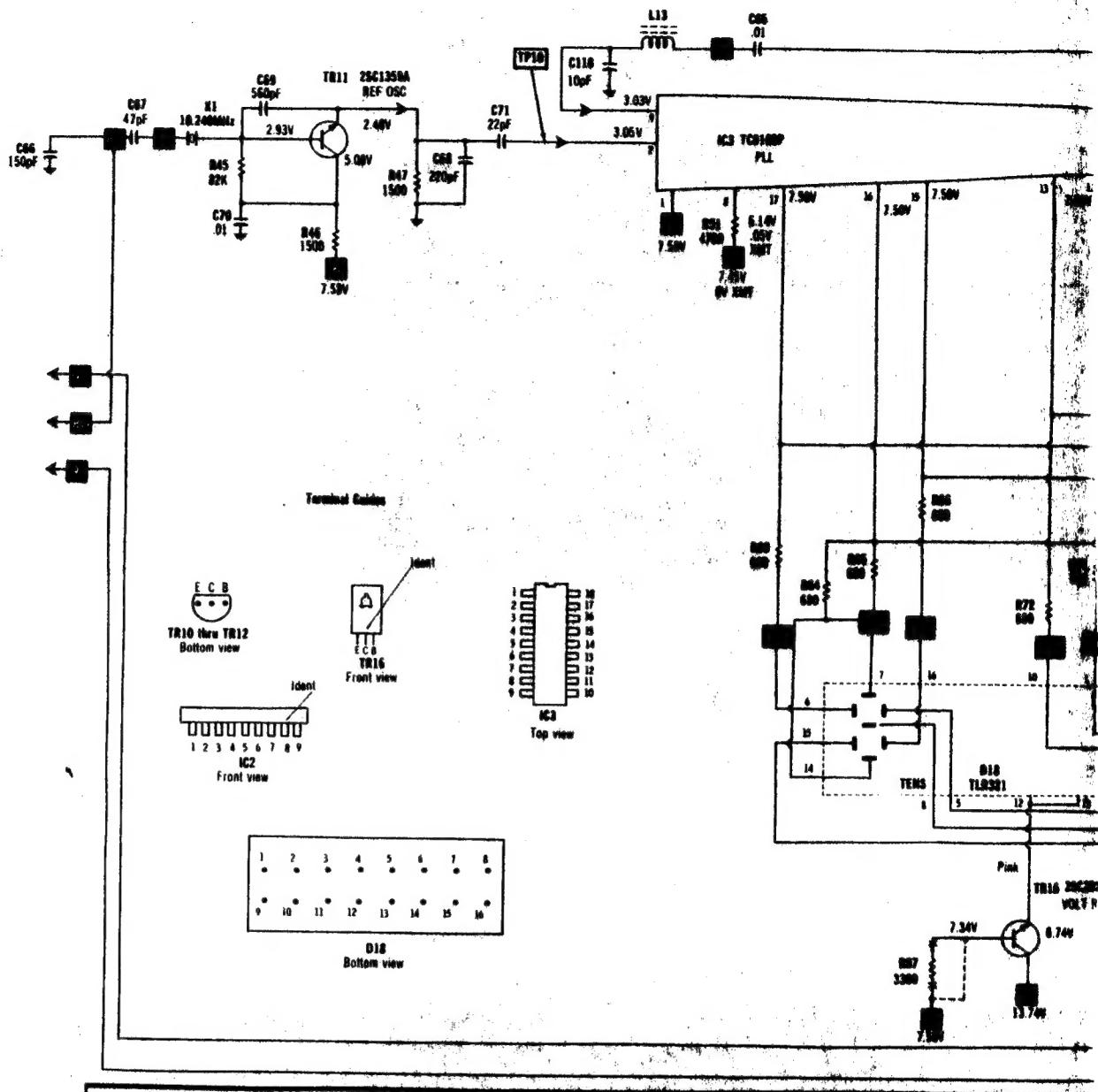
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**PRESIDENT MODEL 1001002, WASHINGTON**



- Circuitry not used in some versions
- Circuitry used in some versions
- See parts list
- ★ Nominal value
- ⊕ Ground
- ⊖ Chassis
- ▽ Common tie point
- ← Signal path
- Voltage path

**Measurements made in Channel 1 with switching as shown unless noted.**  
**Item numbers in rectangles appear in the alignment/adjustment instructions.**  
**Supply voltage maintained as shown at input.**  
**Voltages measured with digital meter, no signal.**  
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